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Two become one

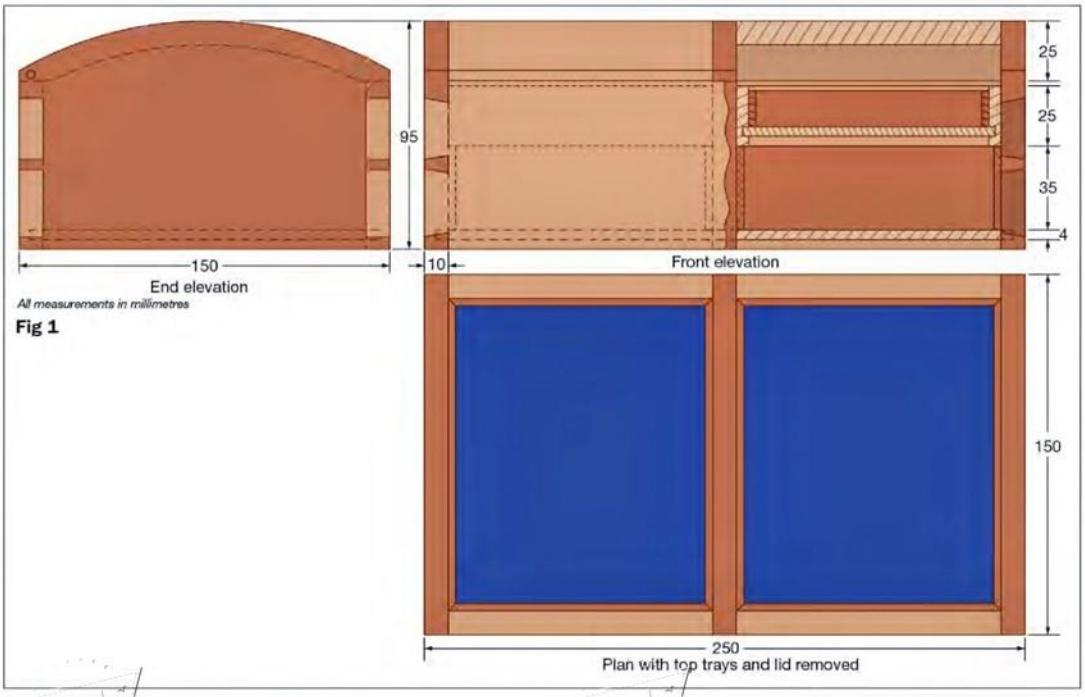
One of the things I'd really looked forward to about retirement was the time to experiment, to make a few mistakes, and to learn new techniques and develop fresh ideas. Here's one of them...

Having been absorbed by some commissioned work for a while, I recently grabbed the opportunity of a friend's wedding to have a go at something different. If it went wrong I'd just go out and buy a present and no one would be any the wiser, but if it worked out I'd have broadened my skill set and had some fun along the way.

Thus was conceived the idea of a his-and-hers jewellery casket. The dual lids presented a technical problem to solve, but the real challenge was that they were curved – something I'd not done before and was keen to try.

The big issue

My first task was to solve the problem of hinging the lids. I wanted to use brass pivot rods, but there was an obvious problem. How would I insert the pivot for the second lid into the central divider once the first lid



All measurements in millimetres

Fig 1

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JEWELLERY CASKET CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Front/back	2	250	70	10
End	2	150	95	10
Divider	1	150	87	10
Lid (from)	2	130	170	35
Base (plywood)	1	238	138	4
Base liner	4	130	35	3
Base liner	4	110	35	3
Tray front/back	4	108	25	6
Tray side	4	128	25	6
Tray base	2	122	102	4

Measure and cut the tray liners to fit the finished trays.

was in place? Two solutions to this puzzle eventually presented themselves to me.

What I did

My idea was to drill the centre pivot hole in the second lid deep enough to insert a small coil spring behind the pivot. This would allow me to push the pivot in flush and hold it there while I fitted the lid into place, the pivot then springing into position as soon as the holes aligned. It worked, but the unforeseen disadvantage was a tiny bit of sideways pressure on the lid that very slightly spoiled the alignment – and of course I couldn't then get the lid off again to correct it! I could have avoided the problem by drilling the hole deeper to leave a little play on the spring, but having sprung it in I was committed.

What I should have done

A woodworking friend came up with a much simpler approach. He suggested leaving the central divider loose until the lids went on, rather than including it in the carcase glue-up. Then the divider and the two lids could be held together, with both central pivots (or a shared one) in place, and the assembly could be lowered into position.

After a successful trial fit, the process can then be repeated with glue, the outer pivots added and their holes plugged. This method has the advantage of allowing a complete trial fit of the lids – not fully possible with my method.

So that's something to bear in mind if you make this. My photos show the central divider fitted as part of the glue up – because that's how I did it – but now you know better!

The making begins

Having (as I thought) solved the lid pivot issue, I cracked on with making the casket. My fall-back positions, should the curved lids be a disaster, were (a) to learn whatever lesson they presented and make some more, or (b) to cut off the curved tops of the casket ends and fit thinner, flat lids.

I prepared the timber, including a blank for the two lids. This needs to be slightly oversize in every direction, as shown in the cutting list, so it can be planed to fit later. Then I marked and cut all the dovetails, **photo 1**, used a hand-held router and a T-square jig to cut the housings for the divider, **photo 2** and cut the grooves for the bottom panel at the router table, **photo 3**.

A pivotal moment

Before assembly, I had to position and drill the holes for the lid pivots. I used 4mm brass rod, obtainable in metre lengths from my local B&Q. I cut it into appropriate lengths and smoothed over the cut ends by spinning each pivot in an ordinary drill chuck against a fine file.

Care in drilling the pivot holes will be repaid with well-fitting and smoothly-opening lids. If the pivots aren't accurately lined up there's a danger of them binding as the lid turns. So I did this on the drill press before cutting any curves.

Next, I used a template I'd prepared earlier to mark the curves on the top edges of the ends and the divider, **photo 4**. I cut the curves on the bandsaw a little shy of the line and trimmed them back on the disc sander, **photo 5**.

Carcass assembly

I cut the plywood bottom panel to size, glued and tapped the corner joints together, checked for square and wind, wiped off what excess glue I could, and set the carcass on a flat surface while the glue went off; cramps weren't needed.

I now had to notch the divider ready to slide into its housings, and shorten it to sit on the bottom panel. At this point I glued it in place, **photo 6**, and then turned my attention to the lids. You, of course, having read my earlier comments, will leave the divider unstuck at this point…

The inside curves

My next task was to halve the lid blank and plane each half until it fitted snugly between the casket end and the divider, **photo 7**. I then marked and drilled the pivot holes and used pre-prepared templates to mark the curves on the ends ready for shaping.

I decided to shape the inside surfaces first so that when I came to plane the tops, the concave underside would naturally sit firmly on its front and rear edges. The lids were small enough to stand on end and pass through my bandsaw, **photo 8**.

Having sawn out the rough waste, I then used a round Microplane rasp for the clean-up. This is incredibly sharp; hence the gloved hand holding the blade in **photo 9**! I also experimented with a bench-mounted belt sander, **photo 10**, but this left serious cross-grain scratches which had to be removed by tedious hand sanding.

Whether you choose either or both of these methods, it's a matter of taking off a little at a time while frequently checking against the curved lines on the ends.

The outside curves

These were a much easier proposition. Again, I cut them roughly to shape on the bandsaw.

1
Cut the four casket sides to size, then mark and cut all the dovetails

2
Use a hand-held router and a cramped-on T-square jig to cut the divider housings

3
Cut the grooves for the casket's bottom panel on the router table

4
Mark the curves on the end panels and the divider using a template

5
Cut the curves on the bandsaw and trim them back on the disc sander

6
Assemble the carcass with its base panel, and cut the divider to fit. Don't glue it in yet, though!

Halve the lid blank and plane each one to fit between the end panel and the divider

It's best to shape the inside curves first. Start with a bandsaw trim...

...and then clean up the resulting curve with a Microplane rasp

You could also use a belt sander, but it tends to leave a lot of cross-grain scratches

Shape the outside curve with a plane and test the fit against the casket panels

Shaping was then a matter of planing with a jack plane, removing the corners after each light cut. Of course, every corner removed produces two more which are also planed away – again with frequent checks against the lines marked on the ends – and eventually the corners become so tiny as to be almost undetectable, at which point sanding down through the grits will leave a smooth curve, **photo 11**.

Testing time

The lids should sit flat on the edges of the casket between the ends and the divider. Do a dry assembly one lid at a time, with the divider and the pivots fitted, **photo 12**, and then make any adjustments required to the fit at the front and rear edges.

At this point, the lids still will not open when the pivots are in place. For that you need to round off their lower rear edges to stop them binding on the back of the casket. This is essentially the same principle as curving the lid tops. Start by chamfering the edge with a plane, and then gradually remove the corners until it's looking pleasingly quadrant-shaped. A trial fit should find it opening smoothly and standing open nicely without any support as the unrounded top edge binds on the back edge of the carcass.

Interim finishing

I like to finish pivot lids completely before fitting them. This ensures that all surfaces which will be inaccessible after fitting are given a few coats, and means that no awkward bits (like the rear of the side edges near the pivots for example) get missed. It also protects the wood from finger marks during later handling. In the event, I did all the finishing work on the carcass as well before attaching the lids, **photo 13**.

Putting the lid on it

Now's the time for the Plan B I mentioned earlier. I haven't tried this – as you'll have realised – but I can't see why it won't work. Insert the central pivot (with this method you can use one long pivot for both lids) through the divider and into the lids on either side. A second pair of hands might be useful here. When you're happy it's all working, brush some glue in the lower part of each divider housing and slide the divider down into position, easing the lids into place on the top of the carcass. Now you can insert the outer pivot rods through their holes in the ends of the casket.

I cut 4mm dowels from scraps of the same board used for the end panels to cover the recessed ends of the outer pivot rods. It's a good idea to mark the depth you want these to go in on the side of the dowels so that you can ensure they stop short of the pins. Leave the dowels proud until the glue goes off, and then trim them flush with a sharp block plane.

Internal affairs

I made the trays next. The construction is a shallow box with a grooved-in base panel, **photo 14**, similar to the casket itself. While the glue in the trays is drying, you can make a start on the mitred linings and dividers. The lower compartments are very straightforward – four pieces of the darker timber mitred to a push-fit using my bird-house jig (see *The Woodworker* July 2013 pages 45-48 for full details).

Something I've learnt the hard way is that the finishing process can spoil lovely, crisp

mitres. This is because it's almost impossible to do the rubbing down between coats without slightly rounding over the inner corners. So here's what I now do instead.

Precision mitres

Cut all the pieces for the linings and dividers and shoot the ends square by trial and error until they are just too tight to slide into place in the casket. Number them, and the corresponding carcass area behind them, to make accurate reassembly easier later. Now do the finishing work on all these pieces, rubbing down between each coat, safe in the knowledge that those little roundovers on the ends are going to be mitred away anyway.

Once the pieces are finally finished, take them back to the bench, mitre them using the birdhouse jig, **photo 15**, and cut the half-laps for the dividers. These last really need to be cut with a very fine-toothed saw. I have a 42 tpi jewellers' saw which leaves a very clean cut – but don't try to cut anything much thicker than this with it.

All the pieces are now ready, mitred to a tight push fit. However, don't be tempted to push them fully home at this stage, or adding the suede trim will be unnecessarily tricky. Just push them in a little way to test their fit and then set them aside.

A little lining

Now it's time for the internal suede or felt trimming. This is simplicity itself, and adds significantly to the distinction of the casket. Cut a piece of card slightly smaller than each compartment so it can be easily dropped in and removed, and prepare corresponding pieces of fabric slightly oversize. Apply a couple of strips of double-sided tape to the card, one along each long edge, and stick the fabric down, trimming it back to the edge of the card with a scalpel or scissors.

The card can now be placed in its compartment and the linings finally installed to cover the cut edges, **photo 16**. Finally, line the trays in the same way, **photo 17**, and drop in the compartment dividers.

All present and correct

I'm not unhappy with the way this jewellery casket turned out – and the learning curve was a bonus. Of course, by the time I'd done all this the wedding day had come and gone, which was a good excuse for a catch-up session with the bride and groom in a local café (right) so I could deliver their present over a celebratory coffee and a slice of wedding cake.

They liked it: it's an excellent café. I think the present went down well too…

Fit one lid at a time with the pivots in place, and adjust as necessary

I chose to apply the finish to the carcase and the lids at this stage for convenience

The two internal trays are simple shallow boxes with dovetailed corners

Cut the linings square, apply their finish and then mitre their ends using a simple jig

Prepare the suede trimming, drop each piece in and fit the box linings on top

Line the two trays in the same way and drop in the linings and dividers

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